

REMARKS

Title 37, Code of Federal Regulations, does not require section headings in the specification of a patent application and the manner of making amendments prescribed in 37 CFR 1.121(b) does not lend itself to addition of section headings.

Claim 15 stands rejected under 35 USC 112, second paragraph and all claims stand rejected under 35 USC 102. Claims 1, 2 and 10-16 have been replaced with new claims 17-30. It is believed that the new claims are not open to rejection on the ground of indefiniteness. Further, the claims now of record are patentable over the prior art cited by the examiner.

The present invention is concerned with a flotation cell and particularly with an arrangement for measuring concentrate flow from a flotation cell. The concentrate is a slurry composed of particles and liquid. The particles are of very different density from the liquid and accordingly the concentrate flow leaving the flotation cell is at least partly stratified. In accordance with the present invention, as defined in claim 17, the flow measuring arrangement comprises an elongate sensor element that extends across substantially the entire transverse dimension of the outlet opening of the flotation cell and is influenced by the material flowing through the outlet, and a measuring device for detecting the position of the sensor element. In accordance with claim 17, the width dimension of the elongate sensor element is substantially less than its length dimension. Preferably, the sensor element is in the form of a rod. The force applied to the sensor element depends on the density of the concentrate and on the speed at which it flows, but the sensor element does not significantly block the flow of concentrate.

Banner discloses a liquid flow indicating means including a flapper switch valve 59 and a potentiometer arrangement including a linkage 61 and a resistive wire 62 for signaling the position of the flapper valve 59. The examiner asserts that the arrangement shown by Banner is in connection with a flotation

cell, but applicant believes that this is not the case. Banner does not disclose a flotation cell. Further, Banner does not disclose or suggest that the flapper switch valve 59 constitutes an elongate sensor element as defined in claim 17. Accordingly, claim 17 is not anticipated by Banner and it follows that the dependent claims 18-30 also are not anticipated by Banner.

The examiner asserts that Schofield discloses an arrangement for measuring a flow in connection with a flotation cell. Applicant believes that this is incorrect. Schofield discloses a flow meter for measuring flow in a pipe or duct. An impact plate 15 substantially blocks the outlet of the pipe 12 and is biased by a weight 24 towards its closed position. As flow of liquid through the pipe increases, the impact plate 14 is pushed away from the pipe at its lower edge. Applicant submits that Schofield does not disclose or suggest that the impact plate 14 constitutes an elongate sensor element within the meaning of claim 17. Further, Schofield does not disclose a flotation cell. Applicant therefore submits that claim 17 is not anticipated by Schofield and it follows that the dependent claims 18-30 also are not anticipated.

Respectfully submitted,



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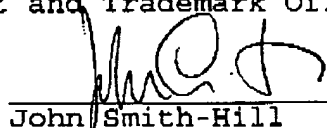
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PATENT

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Eljas SAASTAMOINEN et al

Art Unit: 2855

Application No: 09/980,439

Examiner:
Takisha S. Miller

Filed: January 4, 2002

For: ARRANGEMENT FOR MEASURING
CONCENTRATE FLOW IN CONNECTION WITH
FLOTATION CELLVERSION WITH MARKINGS TO SHOW CHANGES MADE

Rewrite the paragraph beginning on page 1, line 23, to read as follows:

The [invention is characterized by what is set forth in the appended claims. The] arrangement according to the invention is characterized in that the arrangement comprises an elongate sensor element that extends essentially over the whole transversal area of the material flow to be measured, and a measuring device for detecting the position of the sensor element.

Rewrite the paragraph beginning on page 4, line 7, to read as follows:

The measuring method applied by the arrangement is based on a change in the position of the elongate, narrow sensor element 1, which change is transmitted to the angle transmitter 2 or the like. Most advantageously the sensor element 1 is attached to the axis 3 of the angle transmitter 2 and hangs in free downwardly suspension [form] from the fastening point. The position of the sensor element 1 is continuously changed along with the changes taking place in the concentrate flow 13. The angle transmitter 2 registers the changes in the sensor element 1 as a turn β of [he] the horizontal axis 3, and transmits the

information of the change to the display 7 and/or to the control system 6 of the flotation cell. The arrangement according to the invention is particularly well suited to observing changes in the relative flowing of concentrate. In a preferred embodiment, the angle transmitter 2 used as the measuring device is a potentiometer, the output current whereof is changed as the position of the sensor element 1 changes. The measuring device is calibrated to level zero when the sensor element 1 hangs in a vertical position. In a typical situation, the strengthening of the flow 13 is observed for instance as a change in the position of the sensor element 1 in percentages with respect to the zero level.